

# Pig system in Northeast India: An untapped opportunity for entrepreneurs

Ram Pratim Deka

Scientist, Food Safety and Zoonoses program

International Livestock Research Institute (ILRI)



International Livestock Research Institute

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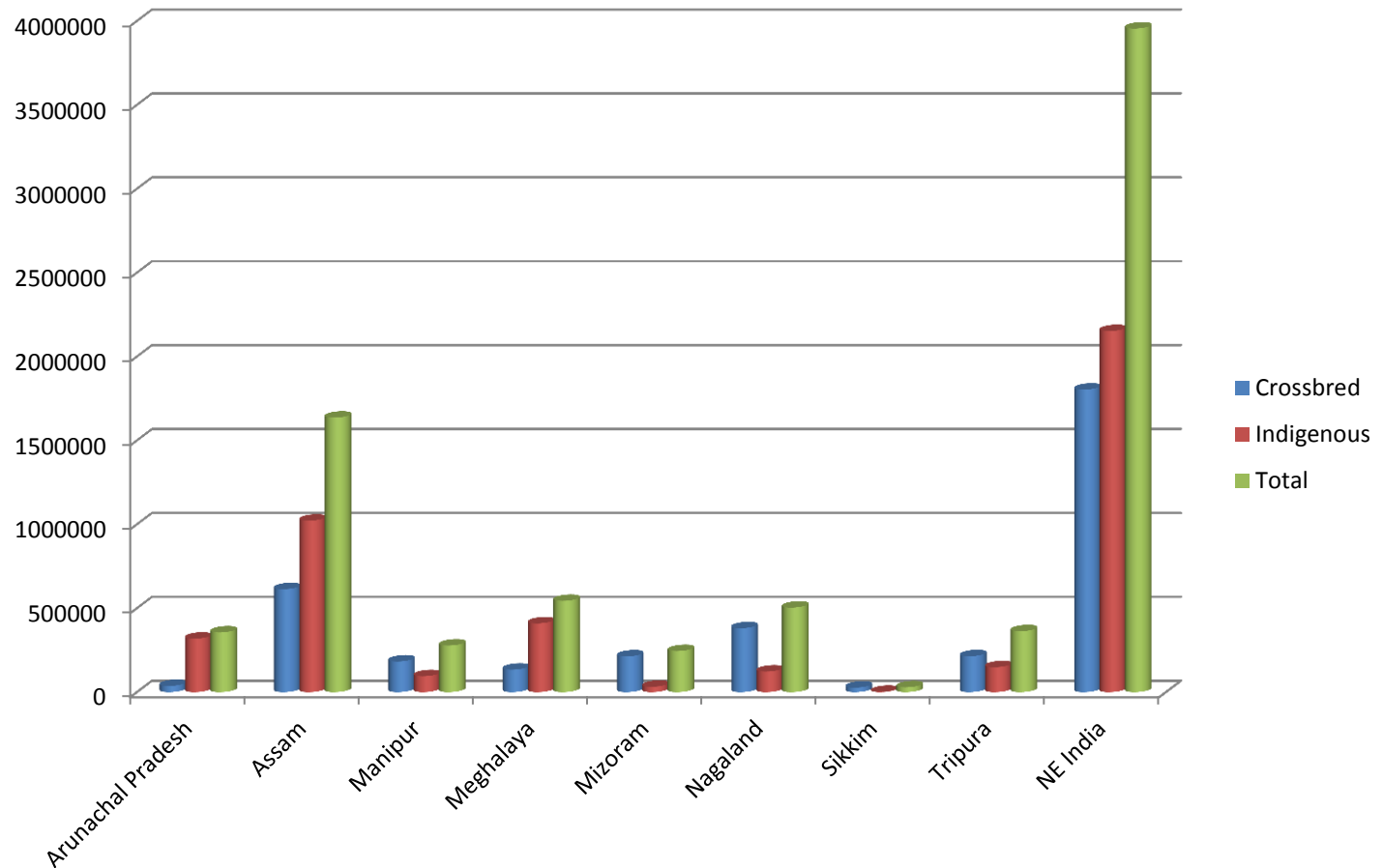
## Greatest strength of pig system in NE India

- Largely deficit in terms of pig, piglets and pork/pork products
- Felt demand at the farm gate
- Traditional custom, skill, knowledge, practice and food habits are conducive for growth
- Industrialization is not taking place (scope for investment)

## Pigs in North East India: an overview

- North East India produces 38% (3.95 m) of total pigs in India (10.29 million in 2012)
- Assam alone produces 16% of India's pigs
- Other NE states produce roughly <0.5 million each
- About 45% pigs are crossbred (24% in India)
- Pig population decreased by -11% in NEI during 2007 & 2012(-7% in India)
- Tripura (37%) and Meghalaya (4%) are the main gainers, Nagaland (-28%) & Assam (-18%) are the main losers

# Pig population in NE India with indigenous and cross bred

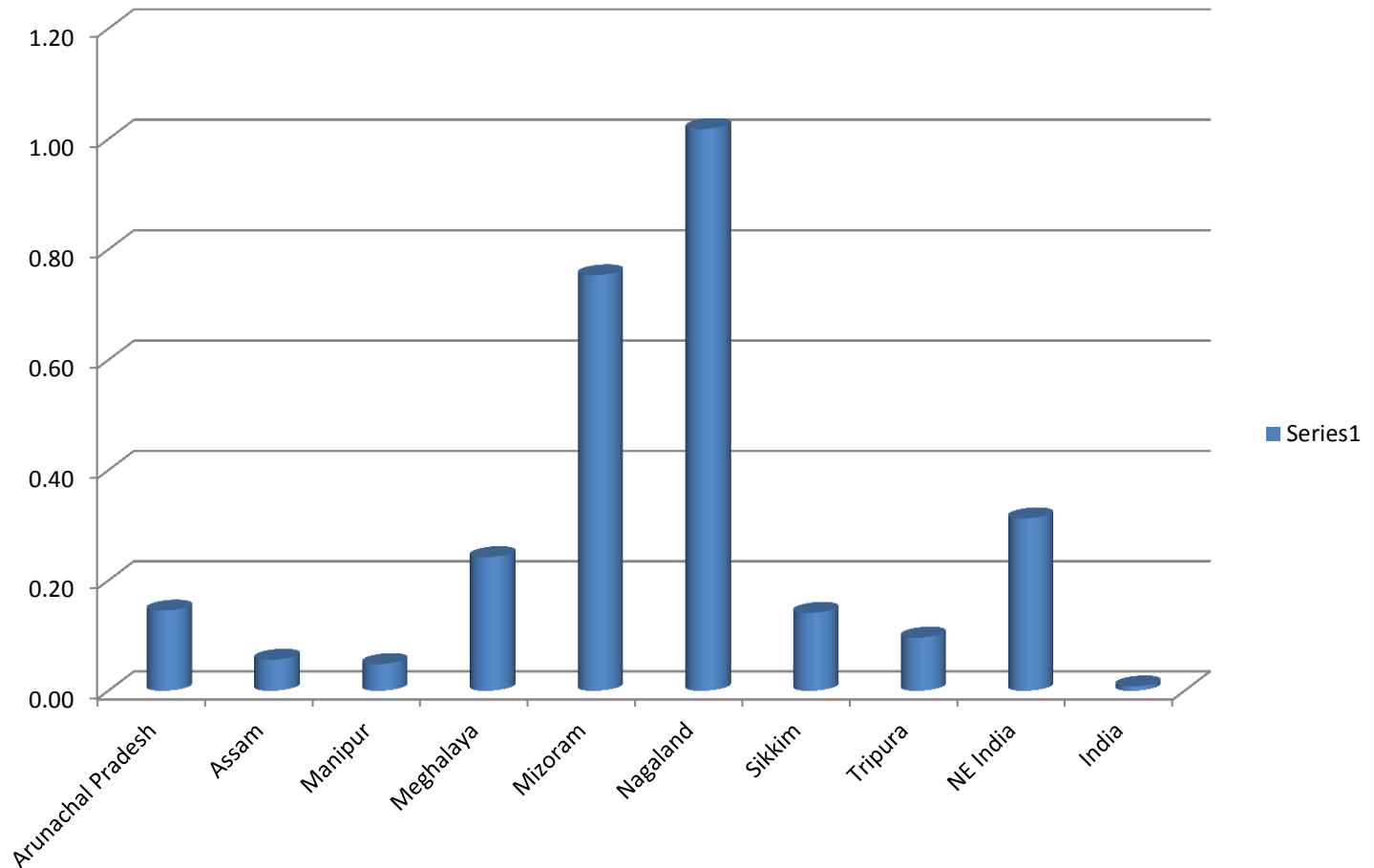


Source: 19<sup>th</sup> Livestock Census, 2012, Govt. of India

## Pigs in NE India

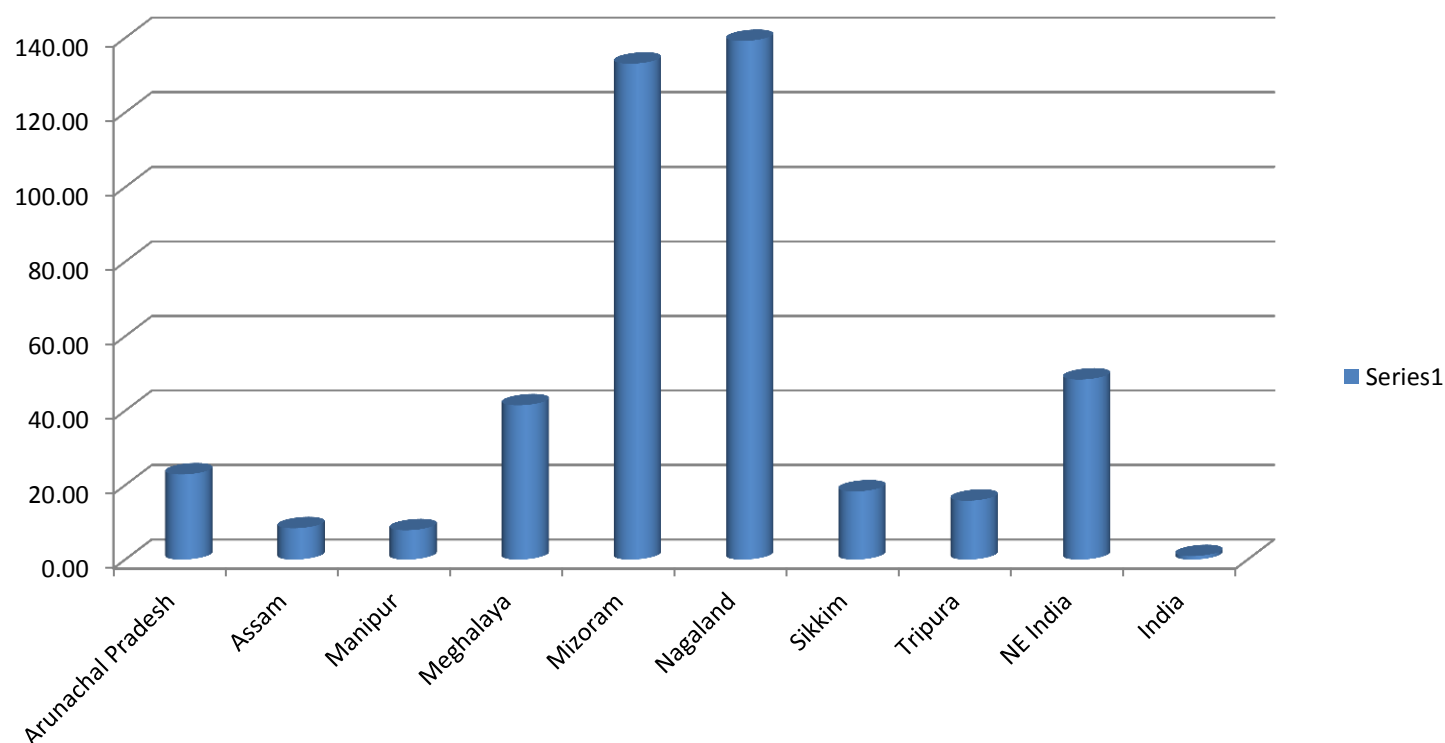
- About 33% are cross bred (24% in India), result of indiscriminate cross breeding
- Cross bred population has grown by 10% in between 2007-2012 (3% in India)
- Mizoram, Nagaland and Sikkim have more than 40% cross bred each
- Manipur (47%), Tripura (43%) and Sikkim (28%) & are showing higher growth in crossbreeding

# Monthly per capita consumption of pork (kg)



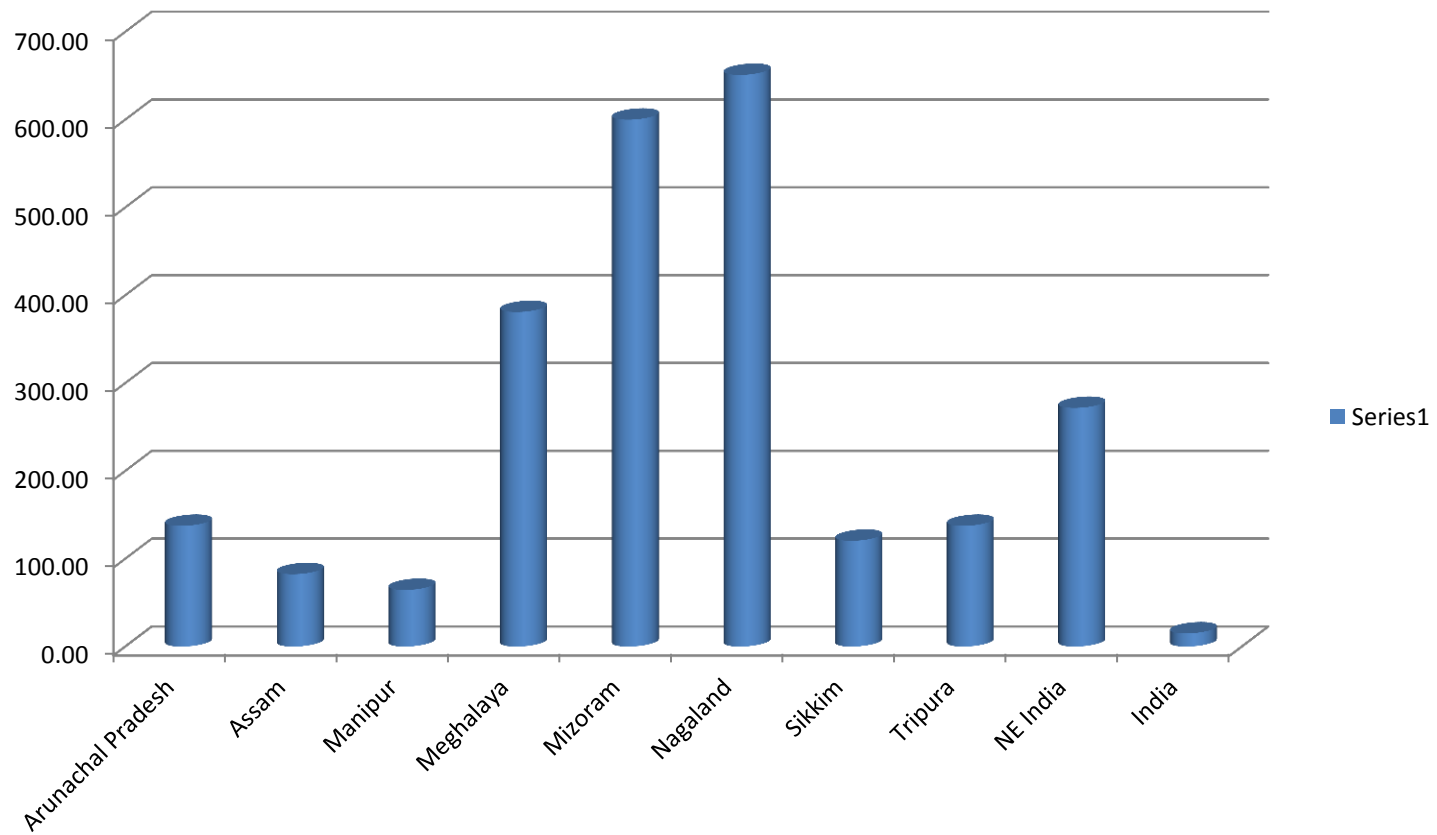
Source: Household consumption of goods and services in India, 2011-12, NSS, Govt. of India

## Monthly per capita value of pork consumption (Rs.)



Source: Household consumption of goods and services in India, 2011-12, NSS, Govt. of India

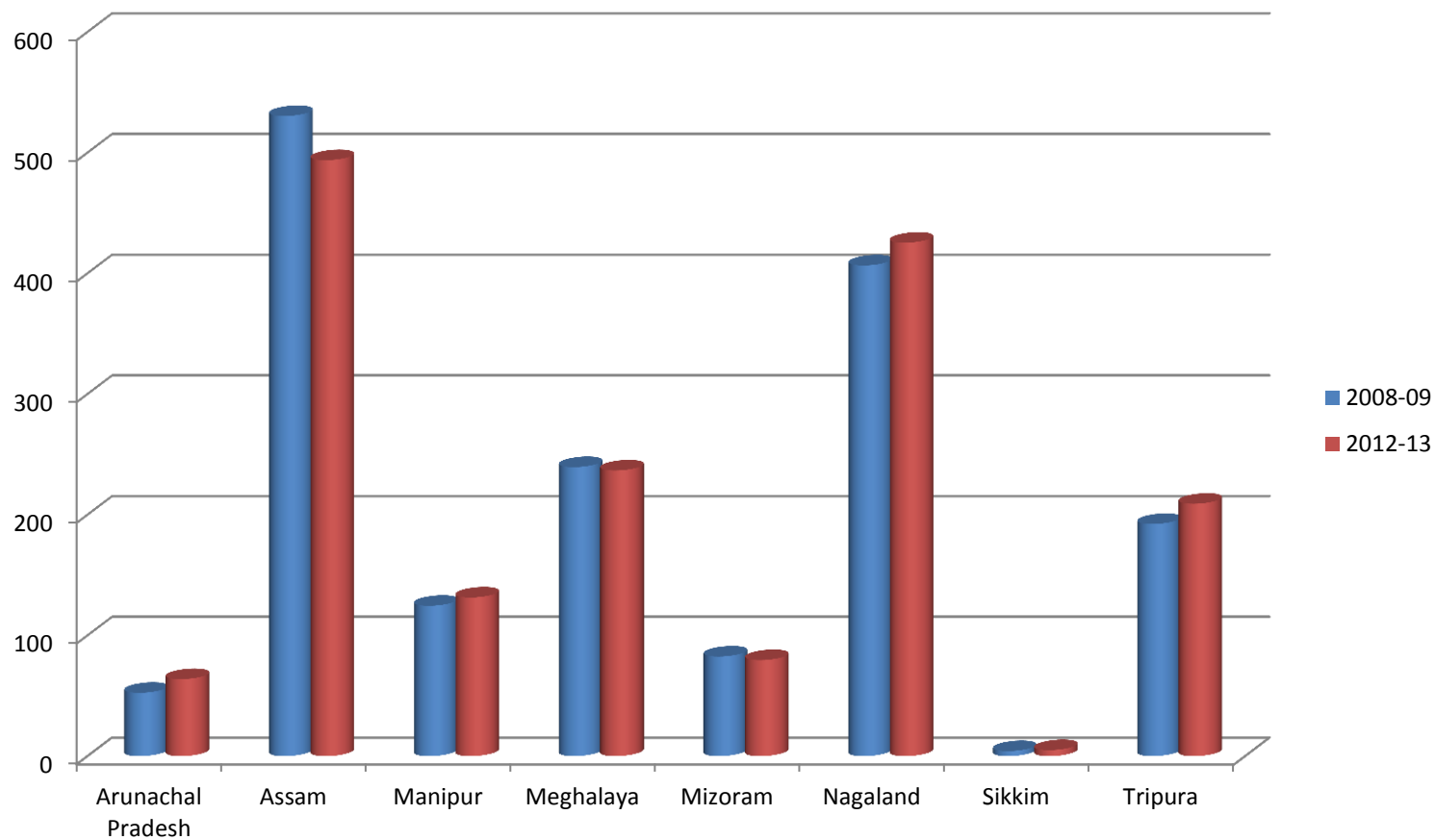
# No. of households reporting consumption of pork (per 1000 households)



Source: Household consumption of goods and services in India, 2011-12, NSS, Govt. of India

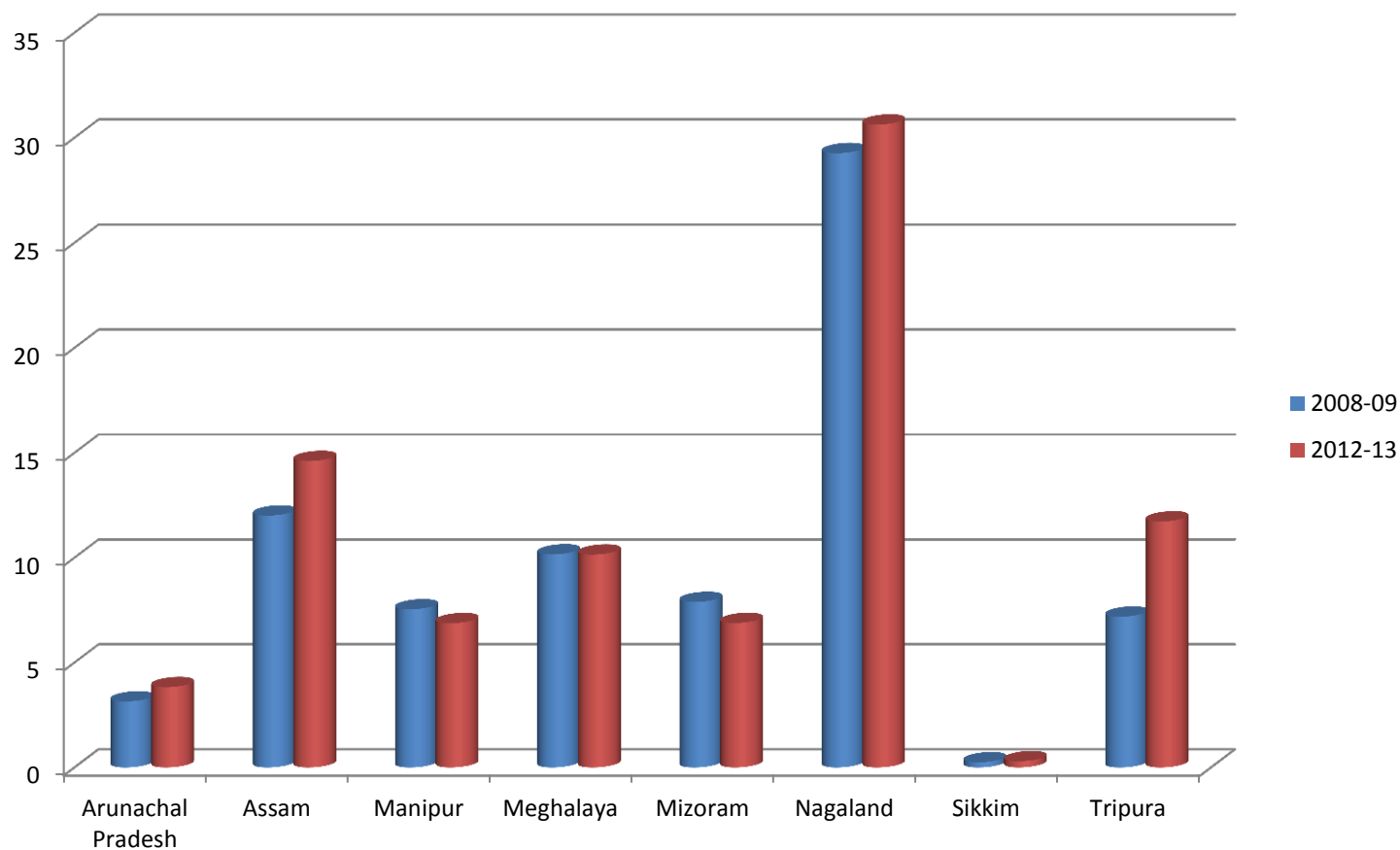


## No. of pigs slaughtered in 2008-09 & 2012-13



Source: Basic animal husbandry and fishery statistics, 2014, DAHD, Govt. of India

# Pork production in NE India ('000 tonnes)



Source: Basic animal husbandry and fishery statistics, 2014, DAHD, Govt. of India

## Production system

- 70-90% tribal rural households rear pigs
- Herd size is largely 1-3
- About 80-90% households rear pigs for fattening
- Stall feeding: in Assam <10%, in other states >80%

## Breeds and breeding

- Black pigs (preferably Large Black) are more preferred by producers
- Artificial insemination is not practised in most part of the region
- Natural breeding is most predominant (but costlier)
- Indiscriminate cross breeding occurs in the field
- Every likelihood of inbreeding depression
- Poor knowledge and capacity of breeding management
- Pure indigenous is losing ground, needs conservation

## Feeds and feeding

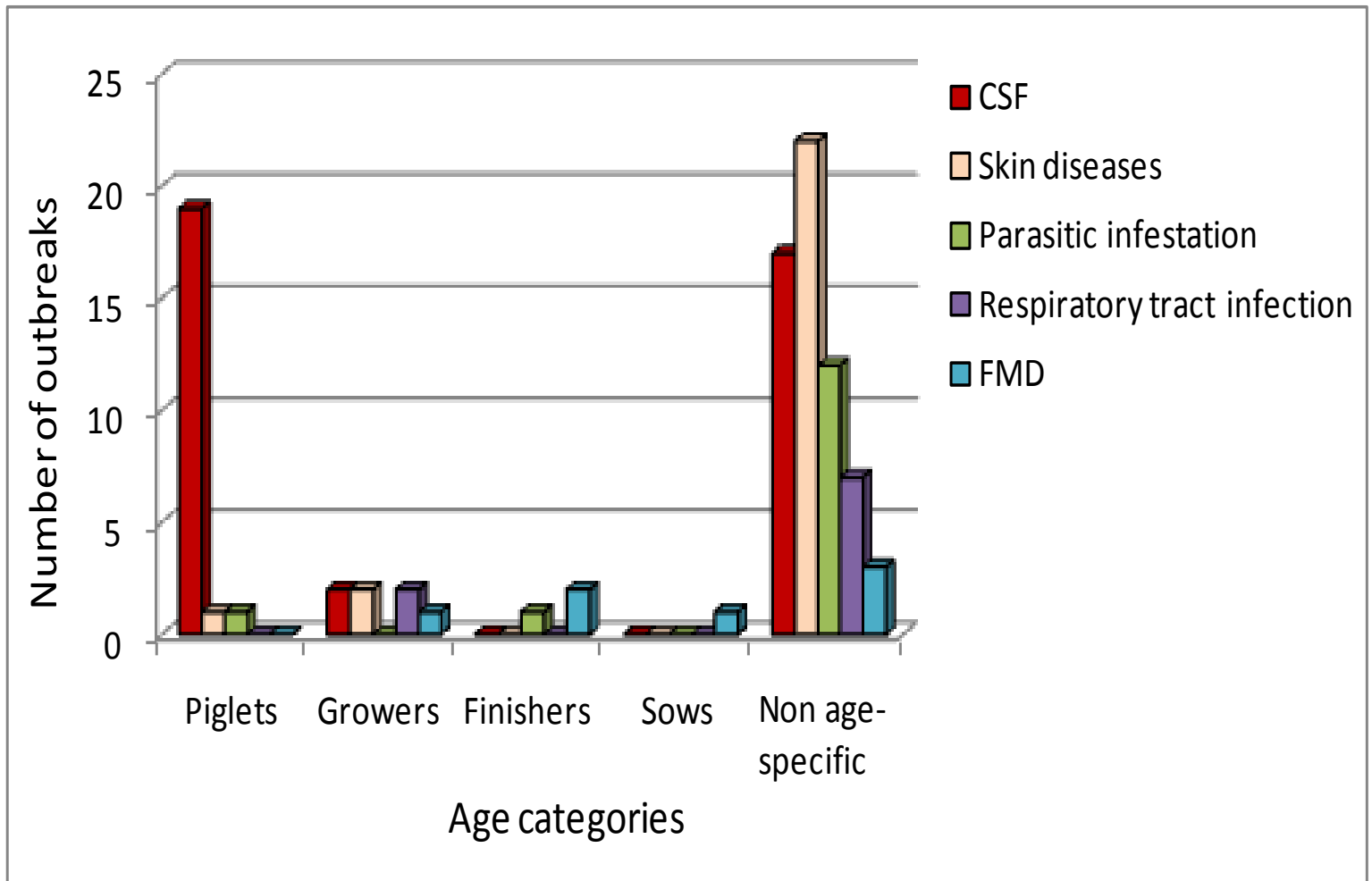
- Pigs are fed on household kitchen waste, residues of rice beer and jungle forages
- Concentrate feeding is not popular nor it is readily available (except in Mizoram)
- Wheat bran and rice polish are widely used as a purchased ingredient
- Cultivation of food-feed crops is not popular

# Nutritional gap analysis

Particulars	DM	CP	ME
Average deficit in current feed	350 gm	114 gm	2.085 Mcal
Ideally, a supplementation ration should contain CP & ME to meet the nutritional gap through offering 350 gm DM	17%	32.57%	5.957 Mcal
Proposed supplementation ration contains (roughly)		20%	3.670 Mcal
Quantity of the proposed supplementation feed required to meet the gap of CP & ME		565 gm	568 gm
<b>Average requirement of supplementation ration</b>		<b>566 gm</b>	
% of supplementation ration to the total feed required		28%	

Source: Nutritional study report in Nagaland & Mizoram, ELKS, ILRI, 2013

# Prevalence of diseases



Source: CSF epidemiological study in Assam, Nagaland & Mizoram, ELKS, ILRI, 2011

## Health care

- Poor access to veterinary services; only about 16.1% of diseased pigs are treated by veterinarians
- Majority of farmers (67.9%) treat their animals by themselves
- Vaccination against CSF and PRRS are not readily available
- Deworming is not done periodically
- Hygiene and sanitation are very poor
- Quarantine of diseased animals is not practised
- Unrecovered diseases animals/ animals under treatment are also sold by some producers



## Scenario of pork market

- Largely dominated by pork from wet markets (about 95%)
- Availability of processed and frozen products is limited to a few major urban centres
- Demand for processed and frozen products is growing at a slower pace; hope to expedite
- Slaughtering and selling infrastructure is poor
- More than 70% of pork retailers operate without valid licences

## Scope for export market

- Scope for export is largely limited by poor husbandry practices and prevalence of infectious diseases
- In SE Asia, pig system is more improved, equipped to follow international WTO regulations
- Scientific and industrial supply chains maintained by big companies
- Scope for supplying to Indian army is nil
- In the immediate future, we should focus more on domestic markets

## Food safety & zoonoses

- Found higher microbial load in pork samples
- Found antimicrobial residues in pork samples
- Japanese encephalitis is endemic
- Cysticercosis is understood to be a problem
- Slaughtering and selling is unhygienic
- Poor awareness about food borne diseases and zoonoses

## Hazard in raw pork produced in wet market

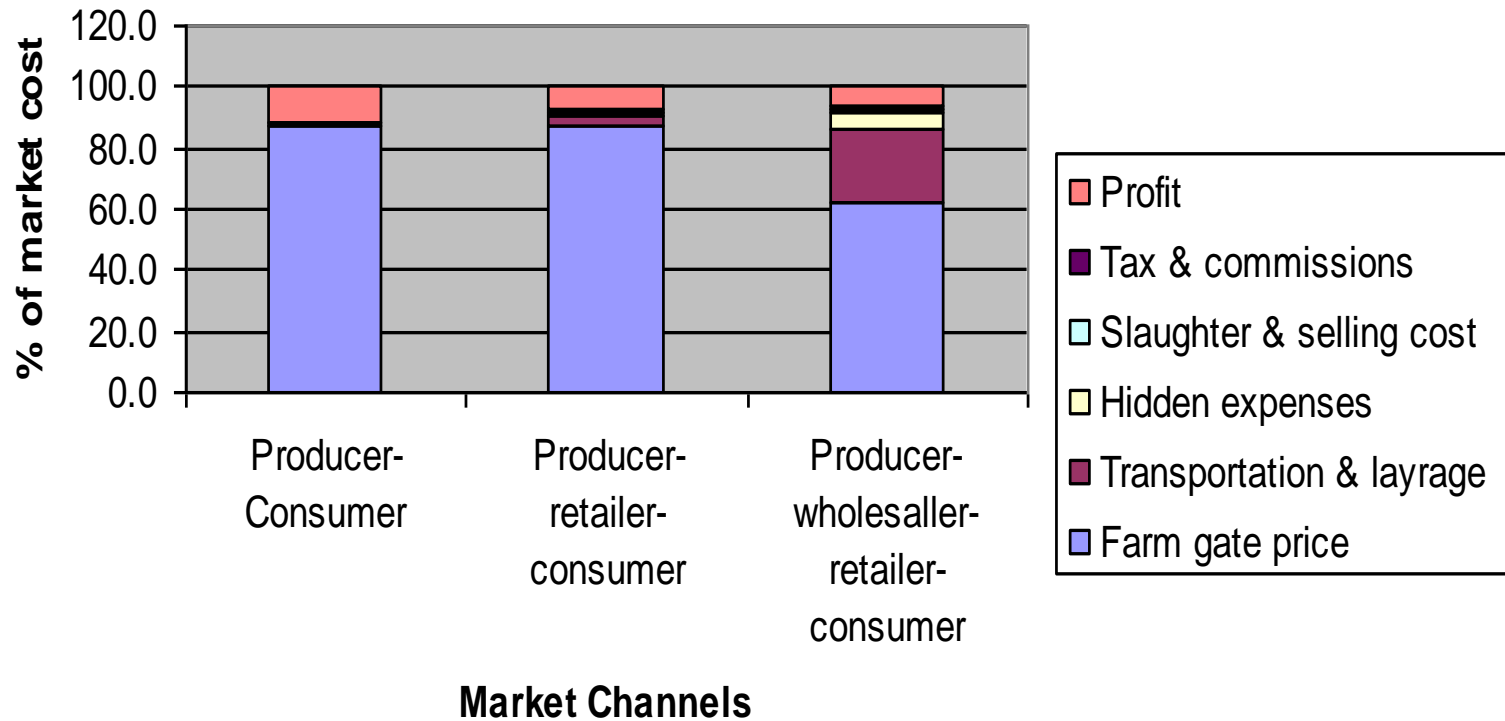
Hazard	% samples positive	% samples with unsatisfactory level
Total aerobic bacteria	97.80	20.2
Enterobacteriaceae	94.5	88.6
<i>Listeria</i> spp.	39.6	2.3%
<i>Staphylococcus aureus</i>	47.4	36.8
Antimicrobial residue	4.5	4.5
<i>Cysticercus cellulosae</i>	8.8	8.8
<i>Brucella suis</i>	Nil	

Source: Pork safety study report in Nagaland, ELKS, ILRI, 2012

## Market access

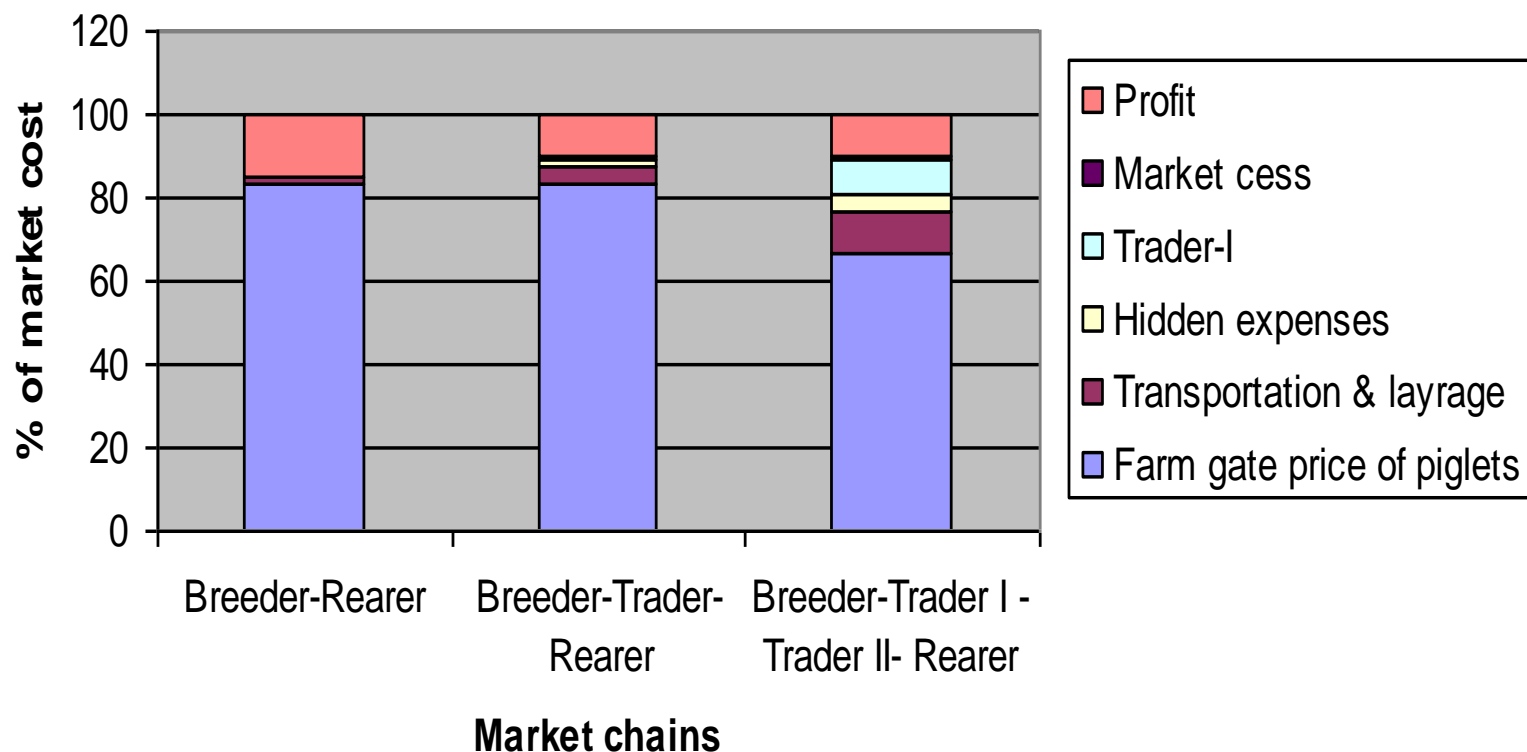
- Ready market at the farm gate (except remote hilly terrain)
- Excellent network of market agents and informants
- Very vibrant market system in the villages
- Market system seems efficient; about 80% of market price goes to producers
- Good demand for bristles (periodically)
- Hidden expenses involved in transportation of pigs is a major problem

## Market Efficiency of Pork Retailing



Source: Pig appraisal report, Assam & Nagaland, 2007 & 2008

## Market Efficiency of Piglet Trading



Source: Pig appraisal report, Assam & Nagaland, 2007 & 2008, ILRI

## Key questions

- Can smallholders meet the growing demand?
- Is there any scope for their transformation?
- If not, what are the alternatives?
- Should we ignore smallholders and follow the path of industrialization?
- Could there be a different independent approach?



# Principles to follow for pig system development

- Two-pronged clear strategy
  - for smallholders
  - for industrial pig production
- Integration is another option
- Industrial production means
  - Higher initial investment on land and infrastructure
  - Integrated feed milling/procurement of concentrate
  - Food-feed crop cultivation
  - Higher biosecurity, periodic vaccination and deworming
  - Better germplasm/genetic material
  - Market linkages and linkages to credit and insurance

## Smallholders' piggery development

- System approach for smallholders
- Incremental change in whole system
- Need-based capacity strengthening
- Peoples' motivation and participation
- Simple, affordable and accessible knowledge and technologies
- Multi-stakeholder involvement
- Market linkages
- More research evidence for replication and policy support

Thank you

